

## **REMARKS**

Claims 1, 2, and 9-16 are pending. Claims 3-8 have been canceled, and claims 17-34 have been withdrawn from consideration. Claim 1 is amended herein to include the limitation that crystal grain boundaries in the ferromagnetic and antiferromagnetic layers extend in a nonparallel direction with respect to an interface between the layers, as supported by the specification at least in Figs. 26, 28 and 31. Several antecedent basis errors in claims 1, 10, 11, and 13-15 are also corrected by amendment. In claim 10, the word "in" is substituted for "between" to eliminate redundancy. This substitution is supported at least by paragraph [0085] of the specification. No new matter has been added.

### **Rejections Under 35 U.S.C. § 102**

The Examiner asserted that Hasegawa et al. (JPO English machine translation of JP 11-191647, publication date 7/13/1999) anticipates claims 1, 2 and 9-16 under 35 U.S.C. § 102(b). Applicants respectfully disagree in light of the amendment to claim 1.

As amended, claim 1 requires an exchange coupling film wherein "crystal grain boundaries formed in the antiferromagnetic layer and crystal grain boundaries formed in the ferromagnetic layer extend in a nonparallel direction with respect to an interface between the ferromagnetic layer and antiferromagnetic layer and are discontinuous in at least a portion of the interface." Hasegawa '647 does not teach such an arrangement of grain boundaries in the ferromagnetic and antiferromagnetic layers with respect to the interface therebetween. Hasegawa discloses only that "the structure of the interface between the antiferromagnetic layer and ferromagnetic layer is a disordered state."

Since Hasegawa does not disclose, either explicitly or inherently, each and every element of claim 1, the reference cannot anticipate the claim or any claims dependent therefrom. Applicants therefore respectfully request that the rejection of claims 1, 2 and 9-16 under 35 U.S.C. § 102(b) be withdrawn.

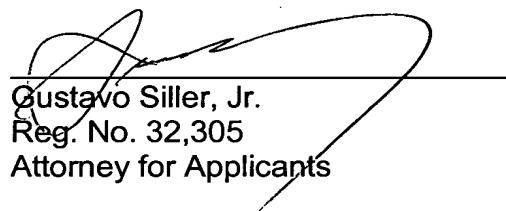
**Rejections Under 35 U.S.C. § 103**

The Examiner asserted that claims 3 and 8 are obvious over Hasegawa '647 as applied to claim 1 above and further in view of Gill (U.S. 6,456, 469 B1). The Examiner further asserted that claims 4-7 are obvious over Hasegawa '647 and Gill as applied to claim 3 and further in view of Lee et al. (U.S. 5,731,936). This rejection is moot in light of the cancellation of claims 3-8. Applicants therefore respectfully request that the rejection of claims 3-8 under U.S.C. § 103(a) be withdrawn.

**Summary**

Applicants believe that currently pending claims 1, 2 and 9-16 are in condition for allowance. The Examiner is invited to contact the undersigned attorney for the Applicants via telephone if such communication would expedite allowance of this application.

Respectfully submitted,



Gustavo Siller, Jr.  
Reg. No. 32,305  
Attorney for Applicants

BRINKS HOFER GILSON & LIONE  
P.O. BOX 10395  
CHICAGO, ILLINOIS 60610  
(312) 321-4200